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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,992	12/11/2001	Takeaki Shimanouchi	2500.66054	3379
7590	09/22/2004		EXAMINER TAMAI, KARL I	
Patrick G. Burns, Esq. GREER, BURNS, CRAIN, LTD. Suite 2500 300 South Wacker Dr. Chicago, IL 60606			ART UNIT 2834	PAPER NUMBER

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary	Application No.		Applicant(s)	
	10/014,992		SHIMANOUCHI, TAKEAKI	
	Examiner		Art Unit	
	Tamai IE Karl		2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Specification

1. The objection to the specification is withdrawn.

Drawings

2. The objection to the drawings under 37 CFR 1.83(a) is withdrawn.

Claim Rejections - 35 USC § 112

3. The rejection of Claim 12 under 35 U.S.C. 112, first paragraph, is withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyck et al.(Dyck)(US 6393913), Werner (US 6133059) and Park et al. (Park)(US 5747690). Dyck shows and actuator having opposing 26 within a framed moving electrodes 28. Dyck shows the stationary and electrodes are parallel and fixedly mounted on a silicon nitride base plane. Dyck inherently teaches a square column(prism) at the end of the wall which is integrally formed with the wall, which is between the datum planes formed by the outer surfaces of the electrode walls. Dyck teaches every aspect of the invention except the solid insulating piece between the electrodes, the material of the insulating piece is silicon nitride, and the columns being between the walls. Werner teaches an insulating member ZR between the adjacent

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capacitance electrodes being the same as the insulating base. Werner teaches an electrostatic actuator having stationary electrodes with columns couple to the end of the wall (see FE 12, in figure 6). Park teaches electrostatic electrodes with columns being wider and between the walls of the electrodes. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Dyck with the insulation between the stationary electrodes to position and provide stability to the electrodes as shown by Werner, and with the insulating material being silicon nitride because Dyck teaches it is the preferred material for the base, and with the column and walls of Park to secure the electrodes to the substrate when surrounded by the moving member.

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyck et al.(Dyck)(US 6393913), Werner (US 6133059) and Park et al. (Park)(US 5747690). Dyck, Werner, and Park teach every aspect of the invention except the spacing between the datum planes being three times the wall thickness of the moving electrode. Park suggests the columns are square and more that three times the width of the electrode wall (See figure 4). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Dyck, Werner, and Park with the spacing between the datum planes being three times the wall thickness of the moving electrode to optimized performance of the actuator, and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (see *In re Aller*, 105 USPQ 233).

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyck et al.(Dyck)(US 6393913), Werner (US 6133059) and Park et al. (Park)(US 5747690).

Dyck, Werner, and Park teach every aspect of the invention except the moving electrode having a thickness W and the stable electrode columns have area of $9W^2$ at the basement plane. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Dyck, Werner, and Park with the moving electrode having a thickness W and the stable electrode columns have area of $9W^2$ at the basement plane to optimized the power supply to the electrodes, and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (see *In re Aller*, 105 USPQ 233).

8. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyck et al.(Dyck)(US 6393913), Werner (US 6133059) and Park et al. (Park)(US 5747690), in further view of Fujii et al.(Fujii)(US 6227050). Dyck, Werner, and Park teach every aspect of the invention except the insulating film and conductor pieces connecting the column to a wiring pattern. Fujii teaches a conductive wiring pattern 122 and an insulating film with the connector piece to the electrodes being surrounded by film (see figure 30). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Dyck, Werner, and Park with the insulating film and conductor pieces connecting the column to a wiring pattern of Fujii to utilize know micromachine assembly techniques.

Response to Arguments

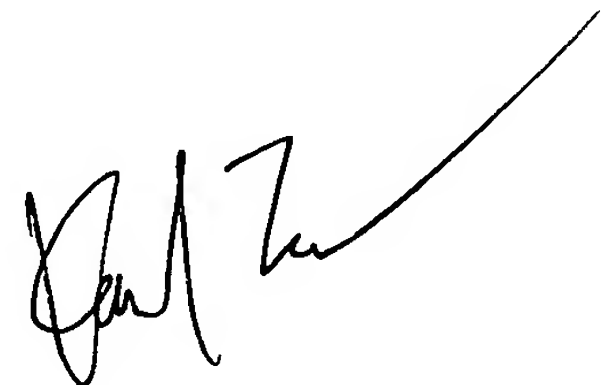
9. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new grounds of rejection.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 – 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
September 17, 2004



**KARL TAMAI
PRIMARY EXAMINER**